INSTITUTE FOR ADVANCED COMPUTING AND SOFTWARE DEVELOPMENT AKURDI, PUNE

Documentation On

"Service Your Vehicle"

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Submitted By:

Group No: 7

Mr.Saeel G. Dhatrak

Mr.Yashkumar S. Verulkar

Mr.Prashant Karhale   Mr.Chetan Pardeshi

Centre Coordinator   Project Guide

Acknowledgements

It gives us great pleasure in presenting the preliminary project report on Service Your Vehicle

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Saeel Dhatrak

Yashkumar Verulkar

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1. Introduction

This document is meant to delineate the features of Service Your vehicle, so as to serve as a guide to the developers on one hand and a software validation document for the prospective client on the other.

Service Your vehicle is a contract between service center and the customer. Service provider will exactly know about the customer needs and customer can choose different type of servicing, modification for his/her vehicle. Also the customer can specify the problems and service staff has to provide the exact solution. This application also gives estimated time and price require for servicing.

> ## ➢ Document Purpose

The advancement in Information Technology and internet penetration has greatly enhanced various business processes and communication between owners and their customers who are willing to service their vehicle. This Service Your Vehicle is developed to provide the following services:

Enhance Business Processes : To be able to use internet technology to project   to the global world instead of limiting their services to their local domain alone, thus   increase their return on investment (ROI).

> ## ➢ Problem Statement

Existing system is a manual one in which users both customers as well as service station owner to be physically present for the services to be done on the vehicle

The following are the disadvantages of the existing system

- It becomes difficult to do things manually for users.
- Customers losses trust towards services station
- It is tedious to manage historical data which needs much space to keep all the previous years records

➢ Product Scope

This application assists the service center to manage their customers and provide best service to them. And also allows the customer to get the service for their vehicle by providing their need

➢ Aim & Objectives

The objective of the Service Your Vehicle is to provide better information for the users of this system for better results for their vehicle maintainence , tranparency and to built the trust of the customer towards service station also helps to maintain records as well.

2. Overall Description

The real power of this project lies not in direct selling of products, but in the creation of tighter relationships with customers and delivering of a high level of service and support, which in turn improves organization sales and its goodwill. Also the system provides the transparency to the customer in the cost or bill that they are going to pay. As the customer himself/herself is going to choose the kind of product that is needed to be used in their vehicle, so that they will be fully aware of the pricing scenario.

➢ <u>User and Characteristics</u>

Admin:

- ▫ Overall controller is in admin's hand.
- ▫ Can login/register.
- ▫ Can update/delete customers, vehicles, staffs and records.
- ▫ Only Admin have authority to add staffs.
- ▫ Can see all the customers, vehicles, staffs and records.

Staff:

- ▫ Can only see his/her details

Customer:

- ▫ Can see his/her details.
- ▫ Can see his/her vehicles, records

3. Requirements Specification

➢ *Hardware Requirements*

- Processor : Intel core processor.
- RAM : 512MB
- Hard Disk : 20 GB or more

➢ *Software Requirements*

- Operating System : Windows 7,8,10
- Programming Language : Java, Angular
- IDE : Spring tool suite, eclipse, visual studio code
- Database : My-SQL

➢ *Technologies Used*

❑ Java:

Java programming language was originally developed by Sun Microsystems which was initiated by James Gosling and released in 1995 as core component of Sun Microsystems Java.

- Features of java
- Object Oriented

In Java, everything is an Object. Java can be easily extended since it is based on the Object model. Object-oriented means we organize our software as a combination of different types of objects that incorporates both data and behaviour . Object-oriented programming (OOPs) is a methodology that simplify software development and maintenance by providing some rules.

- Basic concepts of OOPs are:

1. Object 2. Class 3. Inheritance 4. Polymorphism 5. Abstraction 6. Encapsulation

- Platform Independent

Unlike many other programming languages including C and C++, when Java is compiled, it is not compiled into platform specific machine, rather into platform independent byte code. This byte code is distributed over the web

and interpreted by the Virtual Machine (JVM) on whichever platform it is being run on.

- **Simple**

    Java is designed to be easy to learn. If you understand the basic concept of OOP Java, it would be easy to master.

- **Secure**

    With Java's secure feature it enables to develop virus-free, tamper-free systems. Authentication techniques are based on public-key encryption.

- **Architecture-neutral**

    Java compiler generates an architecture-neutral object file format, which makes the compiled code executable on many processors, with the presence of Java runtime system.

- **Portable**

    Being architecture-neutral and having no implementation dependent aspects of the specification makes Java portable. Compiler in Java is written in ANSI C with a clean portability boundary, which is a POSIX subset.

- **Robust**

    Java makes an effort to eliminate error prone situations by emphasizing mainly on compile time error checking and runtime checking.

- **Multithreaded**

    With Java's multithreaded feature it is possible to write programs that can perform many tasks simultaneously. This design feature allows the developers to construct interactive applications that can run smoothly.

- **Interpreted**

    Java byte code is translated on the fly to native machine instructions and is not stored anywhere. The development process is more rapid and analytical since the linking is an incremental and light-weight process.

- **High Performance**

    With the use of Just-In-Time compilers, Java enables high performance.

- Distributed

Java is designed for the distributed environment of the internet.

- Dynamic

Java is considered to be more dynamic than C or C++ since it is designed to adapt to an evolving environment. To verify and resolve accesses to objects on run-time.

- ❑ Angular

Angular is a platform and framework for building single-page client applications using HTML and TypeScript. Angular is written in TypeScript. It implements core and optional functionality as a set of TypeScript libraries that you import into your apps.

The architecture of an Angular application relies on certain fundamental concepts. The basic building blocks of the Angular framework are Angular components that are organized into *NgModules* . NgModules collect related code into functional sets; an Angular app is defined by a set of NgModules . An app always has at least a *root module* that enables bootstrapping, and typically has many more *feature modules*.

- Components define *views*, which are sets of screen elements that Angular can choose among and modify according to your program logic and data.
- Components use *services*, which provide specific functionality not directly related to views. Service providers can be *injected* into components as *dependencies*, making your code modular, reusable, and efficient.
- Modules, components and services are classes that use *decorators*. These decorators mark their type and provide metadata that tells Angular how to use them.The metadata for a component class associates it with a *template* that defines a view. A template combines ordinary HTML with Angular *directives* and *binding markup* that allow Angular to modify the HTML before rendering it for display.

- The metadata for a service class provides the information Angular needs to make it available to components through *dependency injection (DI)*.
- Angular provides the <u>Router</u> service to help you define navigation paths among views. The router provides sophisticated in-browser navigational capabilities.

❑ Spring Boot:

Spring Boot is an open source Java-based framework used to create a micro Service. It is developed by Pivotal Team and is used to build stand-alone and production ready spring applications.

Micro Service is an architecture that allows the developers to develop and deploy services independently.

- ☐ It provides a flexible way to configure Java Beans, XML configurations, and Database Transactions.
- ☐ It provides a powerful batch processing and manages REST endpoints.
- ☐ In Spring Boot, everything is auto configured; no manual configurations are needed.
- ☐ It offers annotation-based spring application
- ☐ Eases dependency management
- ☐ It includes Embedded Servlet Container

❑ MySQL:

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons −

- ☐ MySQL is released under an open-source license. So you have nothing to pay to use it.
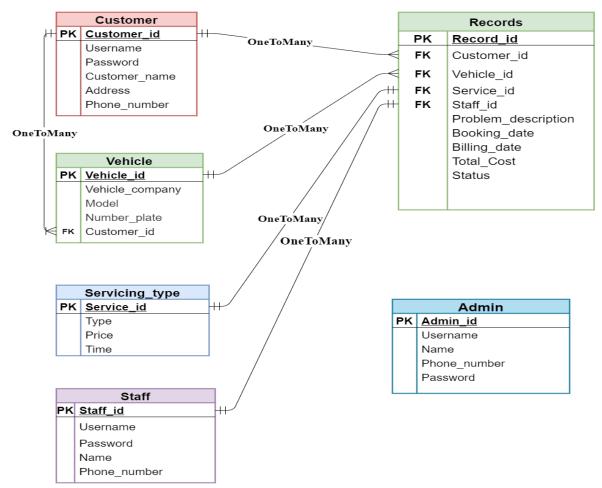- ☐ MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.
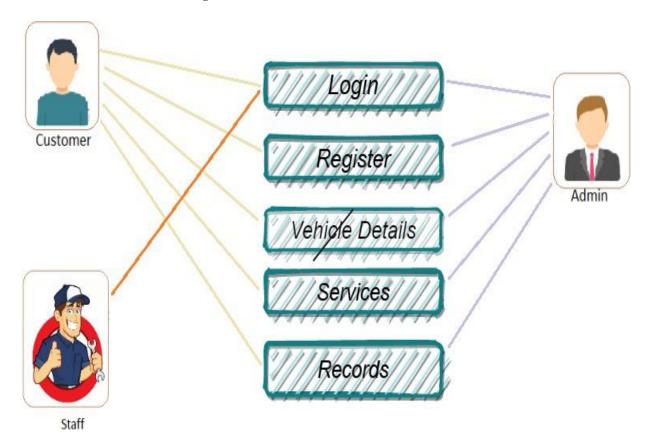- ☐ MySQL uses a standard form of the well-known SQL data language.

- MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.
- MySQL works very quickly and works well even with large data sets.
- MySQL is very friendly to PHP, the most appreciated language for web development.
- MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).
- MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments
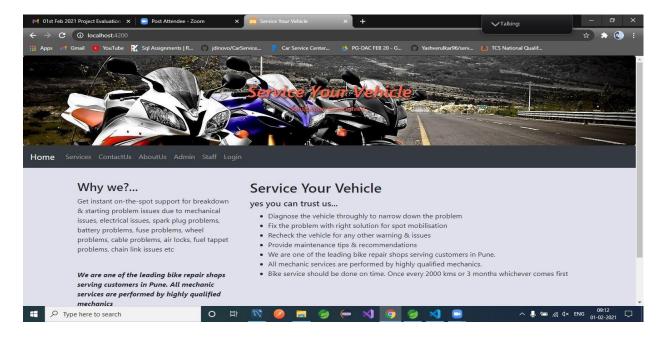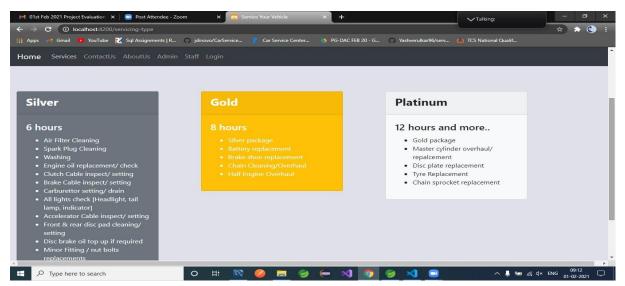
4. System Diagram

> ### *ER Diagram :*

Customer

PK	Customer_id	
	Username	
	Password	
	Customer_name	
	Address	
	Phone_number	

Records

PK	Record_id	
FK	Customer_id	
FK	Vehicle_id	
FK	Service_id	
FK	Staff_id	
	Problem_description	
	Booking_date	
	Billing_date	
	Total_Cost	
	Status	

OneToMany

OneToMany

OneToMany

Vehicle

PK	Vehicle_id	
	Vehicle_company	
	Model	
	Number_plate	
FK	Customer_id	

OneToMany

OneToMany

Servicing_type

PK	Service_id	
	Type	
	Price	
	Time	

Admin

PK	Admin_id	
	Username	
	Name	
	Phone_number	
	Password	

Staff

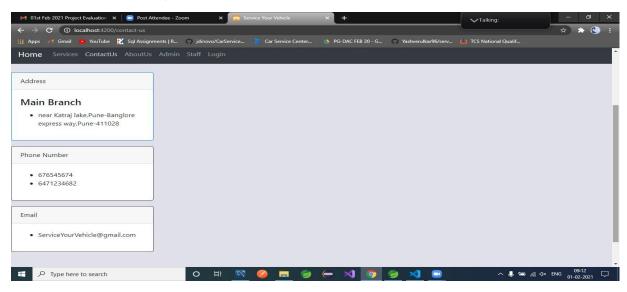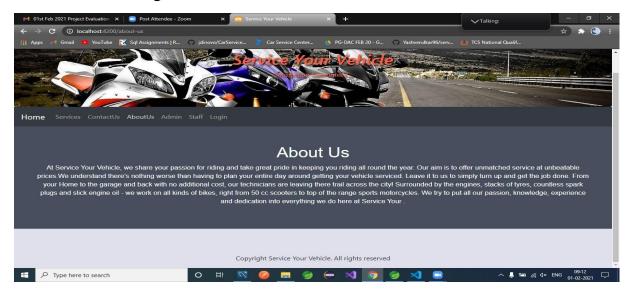|		
PK	Staff_id	
	Username	
	Password	
	Name	
	Phone_number	

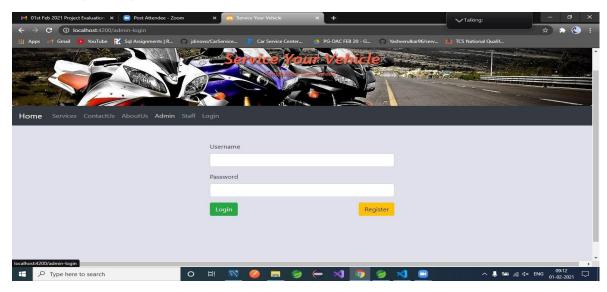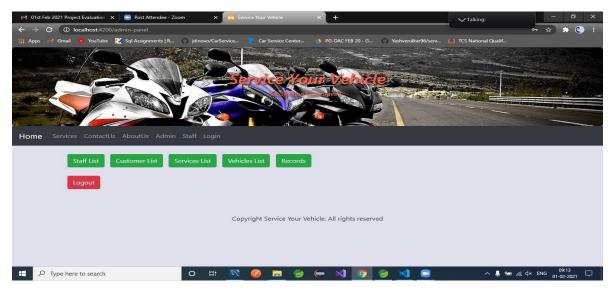➢ *Use Case Diagram :*

5. Screenshots

- Landing Page

- Service Page

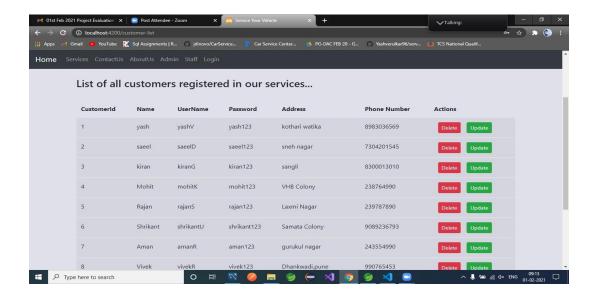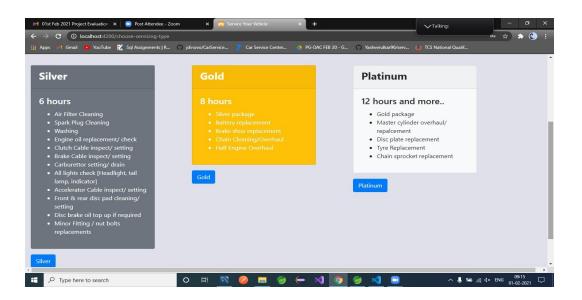- Contact us Page

- About us Page
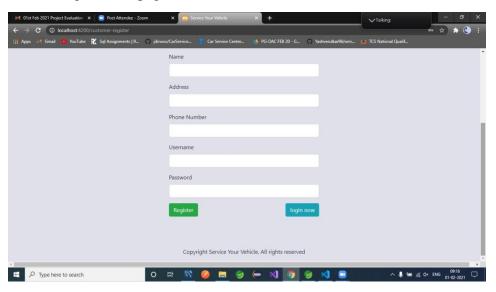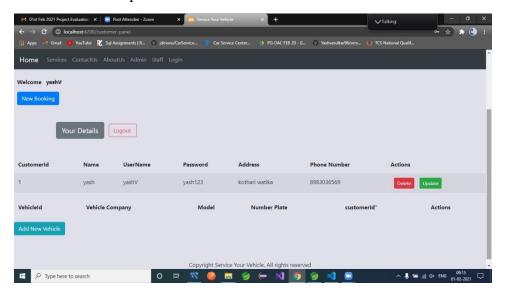
- Login Page

- Admin-panel

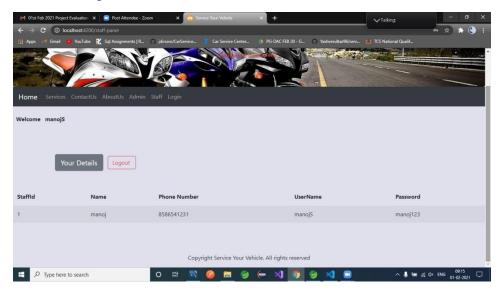Similarly it will show staff, vehicle , service type , records, etc

- Registration page

- Customer-panel

- Staff-panel

6. Conclusion

The package was designed in such a way that future modifications can be done easily. The following conclusions can be deduced from the development of the project

- Automation of the entire system improves the efficiency
- It effectively overcomes the delay in communication .
- Updating of information becomes so easier,
- The System has adequate scope for modification in future if it is necessary

➢ Future Scope

We can add reminder, external Spare parts selection for modification .The application currently lags the billing method .To extend this a billing gateway can be added so that the customer won't even have to go anywhere and do all the things online only.

7.Reference

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